TRANSMITTAL OF APPEAL BRIEF (Large Entity)

Docket No. 01-180

In Re Application Of: **Kevin A. Seiling**

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
10/001,730	November 2, 2001	Kuhns, Allan R.	30058	1732	2670

Invention: **A COMPOSITION FOR MAKING EXTRUDED SHAPES AND A METHOD FOR MAKING SUCH COMPOSITION**

COMMISSIONER FOR PATENTS:

Transmitted herewith is the Appeal Brief in this application, with respect to the Notice of Appeal filed on **July 7, 2005**

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Dated: **September 7, 2005**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	
Kevin A. Seiling	
Serial No. 10/001,730	**A COMPOSITION FOR MAKING EXTRUDED SHAPES AND A METHOD FOR MAKING SUCH COMPOSITION**
Filed: November 2, 2001	
Art Unit: 1732	
Patent Examiner: Kuhns, Allan R.	
Our Ref: 01-180	

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September 7, 2005

APPEAL BRIEF

In support of Applicant's Notice of Appeal in the above-captioned matter, Applicant submits this Appeal Brief.

REAL PARTY IN INTEREST

The subject application has been assigned to Veka, Inc. who is the real party in interest.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

STATUS OF CLAIMS

Claims 1-3, 5 and 18-28 are currently pending and are the subject of this appeal. Original Claim 4 has been cancelled. Claims 6-17 were objected to as being directed to a non-elected invention and have been withdrawn from further prosecution in this application. These claims are the subject of currently pending U.S. Application Serial No. 11/177,533.

STATUS OF AMENDMENTS

All prior amendments in this application were entered prior to the Official Action dated February 9, 2005 from which this Appeal is taken.

SUMMARY OF INVENTION

Claims 1-3, and 5

The invention is directed to a composition for use in structural members. (Pg. 8, lines 26-30). The composition includes a polymer material that is selected from the group consisting of polyvinyl chloride, polyethylene and polypropylene in a concentration of 82% to 99% by weight of the mixture. (Pg. 6, lines 1-9). The polymer material is extruded to have internal closed cells. (Pg. 3, lines 14-16; Pg. 4, lines 7-8; Pg. 6, lines 10-17). The composition also includes glass fibers that are imbedded in the closed cell polymer material. (Pg. 6, lines 10-17). The glass fibers have a fiber length in the range of 50 to 900 microns and are in the amount of 1% to 18% by weight of the composition. (Pg. 3, lines 14-21; Pg. 3, lines 27-30; Pg. 4, lines 12-16). The composition has certain physical properties, particularly a high modulus. (Pg. 8, lines 26-30).

Claims 18-28

A composition for use in extruding structural shapes is made according to the steps comprising:

(1) providing a feed mixture to an extruder. (Pg. 5, line 7-8). The feed mixture includes polyvinyl chloride and glass fibers. (Pg. 4, lines 1-5; Pg. 6, lines 7-9). The polyvinyl chloride is in an amount of about 82% to 99% by weight of the mixture and the glass fibers have a fiber length in the range of 50 to 900 microns. The glass fibers are in an amount of about 1% to 18% by weight of the mixture; (Pg. 4, lines 12-16)

(2) compressing the feed material in the extruder to increase the pressure and temperature of the feed material to form a polyvinyl chloride melt having glass fibers mixed therein; (Pg. 5, lines 7-16; Pg. 6, lines 10-17, lines 22-27);

(3) mixing the polyvinyl chloride/glass melt with a blowing agent to establish closed voids within the melt (Pg. 3, lines 14-20) (Pg. 6, lines 25-31) (Pg. 7, lines 1-10) (Pg. 8, lines 16-19);

(4) extruding the melt through a die to form a polyvinyl material having closed voids and also having glass fibers embedded therein; and (Pg. 6, lines 13-17) (Pg. 7, lines 4-8) (Pg. 8, lines 19-22)

(5) cooling the extruded material to form a solid composition.

ISSUES

Whether Claims 1-3 and 5 and Claims 18-28 are unpatentable under 35 U.S.C. §103 as being obvious over WO00/03859 (translated according to U.S. Patent 6,623,838) (herein "Nomura") in view of U.S. Patent 6,062,624 (herein "Crabtree").

GROUPING OF CLAIMS

The rejection under 35 U.S.C. § 103 applies to Claims 1-3, 5 and 18-28 which stand or fall together.

ARGUMENT

This invention is directed to a composition having a polymer and glass fibers that are selected according to certain properties as more specifically set forth in the claims. The polymer material is formed to have internal closed cells and the glass fibers have selected properties such that the combination of the polymer and the glass fibers is a composition with properties that are especially suited for use as a wood substitute in structural applications. These properties include weatherability, low thermal expansion, high modulus, high resistance to cracking, and specific gravity in the range of 0.5 to 1.0. In the Official Action dated February 9, 2005 (herein "the Official Action") Claims 1-3, 5 and 18-28 were rejected under 35 U.S.C. § 103 as being obvious over Nomura in view of Crabtree.

Among other differences, Claim 1 is patentable over the Nomura and Crabtree references for the reason that it requires "a polymer material [that is] extruded to have internal closed cells" in combination with "glass fibers that are imbedded in the closed cell polymer material" and that

have "a fiber length in the range of 50 to 900 microns". Nothing in Nomura or Crabtree makes such a combination unpatentable. On the contrary, the cited references actually lead away from the subject invention and evidence patentability!

Nomura is directed to an improvement in moldings that are used in applications for which mechanical and thermal properties are important. Examples are auto parts, office equipment, housing, furniture and buildings. (Nomura, Col. 1, lines 18-29). Nomura describes prior art moldings that were made according to injection molding, blow molding and expansion cavity techniques. (Nomura, Col. 1, line 60-Col. 3, line 6). The prior techniques include filling an expansion cavity mold with a low-foaming thermoplastic resin melt and then injecting a pressure fluid (such as nitrogen) into the mold cavity. (Nomura, Col. 2, lines 33-35). That technique is a two-stage method wherein the mold cavity is enlarged in the first stage and an inert pressure fluid is injected during the second stage. (Nomura, Col. 2, lines 33-42). However, in products formed by that prior art method, an inner cavity or hollow space created in the molding resulted in poor stiffness and strength. (Nomura, Col. 2, lines 58-65). Also, a relatively large amount of foaming agent that was required which resulted in surface streaks in the molding. (Nomura, Col. 2, line 65 - Col. 3, line 2).

According to Nomura, its moldings also are made according to a process wherein a mold cavity is filled with a resin melt and a pressure fluid is introduced into the mold cavity while the mold cavity is expanded. (Nomura, Col. 3, lines 36-52). However, the inner cavity in the lightweight molding is provided with a rib structure that traverses the inner cavity to strengthen the molding. (Nomura, Col. 5, lines 39-59). In Nomura, a melt of fiber-containing thermoplastic resin is injected into the mold cavity or is injected and compressed therein. (Nomura, Col. 7,

lines 12-24; Col. 14, lines 48-54). The mold cavity is then expanded and a gas is injected into the resin melt after the cavity expansion is initiated. (Nomura, Col. 7, lines 36-38). The walls of the mold cavity have recesses wherein the resin resides during injection. (Nomura, Col. 8, line 32-42). The ribs are drawn from the recesses as the mold cavity is expanded. (Nomura, Col. 11, lines 1-7).

In contrast to Nomura, the invention of Claim 1 specifies a polymer material that has internal closed cells. Nowhere does Nomura describe or suggest a composition wherein a polymer material has internal closed cells. Certainly, there is no teaching in Nomura that "glass fibers" are imbedded in a "closed cell polymer material" (emphasis added) as also required by Claim 1.

In contrast to Claim 1, Nomura, actually teaches away from the use of "closed cells"! The moldings made according to Nomura are specifically said to have "an open cellular structure." (Nomura, Col. 8, lines 63-68). In Nomura, the injected gas participates in the formation of an internal hollow area and also in the formation of the pores in the moldings. (Nomura, Col. 14, lines 10-12). When the gas is introduced to the mold, it permeates through the foamed cell walls to disperse throughout the molding. (Nomura, Col. 14, lines 3-12). According to Nomura, the "air permeable pores ... do not have a macroscopically detectable, definite, hollow area but are so constructed that gas is permeable through the structure of the moldings." (Nomura, Col. 15, lines 53-57).

Thus, the Nomura molding is comprised of gas-permeable walls that have an "open cellular structure"-not a "closed cell" structure as required by Claim 1. The purpose of the gas-permeable walls in Nomura is to allow the gas that is injected to permeate through the cell walls

and easily disperse throughout the molding. In this way, the molding can have a large number of pores and the gas that is injected substantially participates in the formation of the pores as well as the formation of the internal hollow area of the molding. (Nomura, Col. 14, lines 2-13; Col. 15, lines 53-57).

The patentable differences between Claim 1 and Nomura are not made unpatentable by any combination of Nomura with Crabtree. Unlike Nomura, which relates to moldings for use in structural applications, Crabtree is directed to an acoustical baffle. Crabtree describes a baffle that can be used to fill voids in automobile bodies to improve acoustical characteristics and resistance to corrosion. (Crabtree, Col. 1, lines 12-29). In Crabtree, the acoustical baffle 10 includes an expandable sealant 16 that is sandwiched between foil laminated boards 14. The baffle is held together by staples 20 and is held in place by clips 18. (Crabtree, Col. 2, lines 55-60).

The Official Action cited Crabtree to support the broad contention that resins having internal closed cells are interchangeable with resins that form open cells. Nothing in Crabtree supports such interchangeability for non-acoustic applications. First, the Official Action quarrels that Crabtree is intended for an application similar to that of Nomura. However, neither Nomura nor Crabtree supports such a contention. The Official Action asserts that there is commonality between Nomura and Crabtree because they both have potential application to automobiles. That is in no way is sufficient to support the proposed combination of those references. Apart from the possibility that the structures of both Nomura and Crabtree might be found on an automobile, there is no commonality between them. The Official Action asserts that the acoustical baffle of Crabtree is somehow comparable to the structural molding of Nomura.

That contention is simply wrong. There is no support in either reference for the notion that the respective structures share a common purpose or application, or that one skilled in the art would be likely to consider acoustical-based references to modify mechanical-based products. Accordingly, Crabtree is non-analogous art and its combination with Nomura is improper.

Furthermore, Crabtree does not support the notion that polyvinyl resin materials, whether closed cell or open cell, are interchangeable for all applications. Crabtree merely states that for the acoustic filler that is described therein, either an open cell or closed cell structure will suffice. Particularly, no teaching of Crabtree supports the suggestion of the Official Action to selectively ignore the instructions of Nomura and, contrary to the Nomura teachings, employ a closed cell composition even though Nomura expressly teaches that an open cell composition is to be used!

The Official Action ignores the express teachings of Nomura and attempts to combine Nomura, which requires an open cell material, with the closed cell material of Crabtree. Crabtree states that various types of foaming material can be sandwiched between the layers of foil coated craft board. (Crabtree, Col. 3, lines 14-15 and 52-54). Crabtree is indifferent as to cell structure for the acoustic foaming material. The acoustic foaming material can be either open cell or closed cell and either flexible or rigid. (Crabtree, Col. 3, lines 52-58). However, nothing in Crabtree describes or suggests how or why a closed cell foaming material used for acoustic purposes can be properly substituted for the thermoplastic resin of Nomura which specifically requires an open cell structure to allow the injected gas to disperse throughout the molding.

Nothing in Crabtree suggests that a polyvinyl material having closed cells could be substituted into Nomura which specifically requires an open cell structure. Crabtree does not

teach that closed cell foaming materials are interchangeable with open cell foaming materials. Crabtree merely states that for the acoustic application therein described, both open cell and closed cell foaming materials are acceptable. This, however, is far different than the Official Action's assertion that open cell or closed cell foams can be used indiscriminately for structural applications.

The combination attempted by the Official Action is directly contrary to controlling precedent. Claim 1 cannot be made unpatentable by modifying or combining Nomura and Crabtree in accordance with the Applicant's own teachings. A determination of obviousness must involve more than indiscriminately combining prior art. Micro Chem., Inc. v. Great Plains Chem. Co., Inc., 103 F.3d 1538, 1546 (Fed. Cir. 1997), cert. denied, 117 S. Ct. 2516 (1997). The Patent Office must show a motivation to combine references to prevent the use of the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. In re Rouffet, 149 F. 3d 1350 (Fed. Cir. 1998) (reversing the Patent Office Board of Appeals holding of obviousness). The requirement of a motivation to combine references is necessary to prevent findings of obviousness based improperly on "the subtle but powerful attraction" of hindsight reconstruction. Ruiz v. A.B. Chance Co., 234 F. 3d 654, 664-65 (Fed. Cir. 2000). Absent any disclosure or suggestion of an element or step that the cited references have failed to disclose, there can be no motivation to modify the prior art to arrive at the claimed invention. In re Kotzab, 217 F. 3d 1365, 1370 (Fed. Cir. 2000)(reversing the Patent Office Board of Appeals and Interferences' affirmance of the Patent Office rejection of an application based on a combination of references).

Nothing in Crabtree suggests that any of the closed cell acoustic materials mentioned therein can be successfully substituted for open cell structural materials despite the express purpose for open cell material as stated in Nomura. The use of closed cell polymer material as a structural member can only be gathered from the Applicant's own teachings.

Crabtree merely states that for the acoustic filler that is therein described, either an open cell or closed cell structure will suffice. No reading of Crabtree supports the notion that polyvinyl resin materials, whether closed cell or open cell, are interchangeable without regard to intended application. Particularly, no teaching of Crabtree supports the suggestion that the instructions of Nomura to use an open cell material can be selectively ignored. The suggestion of the Official Action is contrary to Nomura. It is inappropriate to substitute the closed cell acoustic material of Crabtree for the open cell structural material of Nomura when Nomura expressly teaches that an open cell composition is to be used!

A reference does not contain a suggestion to combine references and teaches away from the invention if one of ordinary skill in the art would not likely produce the Applicant's result by following the line of development disclosed in the references. Tec Air, Inc. v. Denso Mfg. Michigan, Inc., 192 F.3d 1353, 1360 (Fed. Cir. 1999). Ecolochem, Inc. v. Southern California Edison Co., 227 F.3d 1361 (Fed. Cir. 2000), reh'g denied, in banc suggestion declined, (December 13, 2000) and cert. denied, 121 S. Ct. 1607 (2001). (Secondary reference recommended alternative method to that of primary references.)

Following the teachings of Nomura, one normally skilled in the art would be led away from the closed cell structure of Claim 1. Nomura teaches a molding with an open cell structure - not a closed cell structure as required by Claim 1. In Nomura, the open cell structure serves the

purpose of dispersing the injected gas throughout the molding. The use of closed cells is directly opposed to the teachings of Namura which requires open cells. A closed cell polymer with imbedded glass fibers having a length in the range of 50-900 microns as required by Claim 1 remains unknown from Nomura. Nomura says nothing about an extruded polymer having closed cells as required by Claim 1. Thus, Nomura leads one skilled in the art to use an open cell material and does not suggest any combination with Crabtree.

There is no suggestion in Nomura that would lead one skilled in the art to attempt to use a closed cell polymer with imbedded fibers. Nomura teaches a molding having an open cell structure. The Official Action's bare assertions of "ordinary skill in the art" cannot bridge the gaps between Nomura and Crabtree. Missing suggestions cannot be supplied merely by reference to "ordinary skill in the art." Imbuing one of ordinary skill in the art with the knowledge of the invention at issue in the absence of art that conveys or suggests such knowledge is to fall victim to hindsight reconstruction. Al-Site Corp. v. VSI Int'l, Inc., 174 F.3d 1308 (Fed. Cir. 1999). The best tool in preventing impermissible hindsight reconstruction is the rigorous application of the requirement for a showing of a teaching or motivation to combine prior art references. In re Dembiczak, 175 F.3d 994 (Fed. Cir. 1999) (reversing the Board of Patent Appeals and Interferences' affirmation of the Patent Office's obviousness rejections). Claim 1 is therefore patentable over any combination of Nomura and Crabtree.

The Official Action engages an impermissible "obvious to try" standard for which Nomura, the primary reference, fails to teach all the limitations required by the claims. There is no obvious motivation to modify the elements of Nomura as suggested in the Official Action. Indeed, Nomura leads to the exact opposite conclusion! The rejection proposed by the Official

Action is necessarily based on the Applicant's own teachings and not the teachings of Nomura. What may have been within the knowledge of one skilled in the art is insufficient absent evidence that one of ordinary skill in the art actually possessed such knowledge. Smiths Indus. Med. Sys., Inc., 183 F.3d 1347, 1356 (Fed. Cir. 1999). After unsuccessfully relying on judicial notice in an earlier action, the Official Action again fails to identify a reference in which a structural molding incorporates a closed-cell polymer. This further demonstrates that the closed cell and open cell polymers are not known to be freely interchangeable for use in structural moldings as the Official Action proposes.

Claims 2-3 and 5

Claims 2 –3 and 5 are dependent on Claim 1 and incorporate all the limitations thereof. Accordingly, among other reasons, Claims 2-3 and 5 are patentable over Nomura for the same reasons as stated for Claim 1.

Claim 18

Claim 18 is patentable over Nomura in that, among other reasons, Claim 18 requires a composition in which the process of manufacture includes the step of "extruding the melt through a die to form a polyvinyl material having closed voids and also having glass fibers imbedded therein." As discussed previously with respect to Claim 1, Nomura does not suggest that the polyvinyl material should have closed voids. In fact, the teachings of Nomura are exactly the opposite! Nomura states that the cells produced according to the process therein described are "open" cells and that the porosity derives from air permeable pores that do not have a macroscopically detectable, definite hollow area. (Nomura, Col. 8, lines 63-68; Col. 15, lines 53-57).

Claim 18 is patentable over the cited references for the reason that it requires "a polymer material having closed voids" in combination with "glass fibers that are imbedded [in the closed void polymer material]" and that have "a fiber length in the range of 50 to 900 microns". Nothing in Nomura or Crabtree makes such a combination unpatentable. In fact, the cited references actually lead away from the subject invention and evidence patentability!

Claims 19-28

Claims 19-28 are dependent on Claim 18 and incorporate all the limitations thereof. Accordingly, among other reasons, Claims 19-28 are patentable over Nomura for the same reasons as stated for Claim 18.

In accordance with the forgoing, Claims 1-3, 5 and 18-28 are in condition for allowance. The Applicant respectfully requests that the Board to reverse the rejection of Claims 1-3, 5 and 18-28 and order that such claims be allowed.

Respectfully submitted,

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APPENDIX

The claims that are on appeal are as follows:

Listing Of Claims On Appeal

1. A composition for use in structural members, said composition comprising:

a polymer material selected from the group consisting of polyvinyl chloride, polyethylene and polypropylene in a concentration of 82% to 99% by weight of the mixture, said polymer material being extruded to have internal closed cells ; and

glass fibers that are imbedded in the closed cell polymer material, said glass fibers having a fiber length in the range of 50 to 900 microns and being in the amount of 1% to 18% by weight of the composition.

2. The composition of Claim 1 wherein the glass fibers have a screen size in the range of 1/64 inch to ¼ inch.

3. The composition of Claim 1 wherein the glass fibers have a fiber diameter in the range of 5 microns to 30 microns.

5. The composition of Claim 1 wherein the glass fibers have a bulk density in the range of 0.275 grams/cc to 1.05 grams/cc.

18. A composition for use in extruding structural shapes, said composition being made according to the steps comprising:

providing a feed mixture to an extruder, said feed mixture including polyvinyl chloride and glass fibers, said polyvinyl chloride being in an amount of about 82% to 99% by weight of the mixture and said glass fibers having a fiber length in the range of 50 to 900 microns and being in an amount of about 1% to 18% by weight of the mixture;

compressing said feed material in the extruder to increase the pressure and temperature of the feed material to form a polyvinyl chloride melt having glass fibers mixed therein;

mixing the polyvinyl chloride/glass melt with a blowing agent to establish closed voids within the melt;

extruding the melt through a die to form a polyvinyl material having closed voids and also having glass fibers embedded therein; and

cooling the extruded material to form a solid composition.

19. The composition that is made according to the method of Claim 18 wherein said blowing agent is a compressed gas that is inert to the polyvinyl chloride and glass fibers and that is injected into the extruder to mix with the polyvinyl chloride/glass melt.

20. The composition that is made according to the method of Claim 19 wherein said injected blowing agent is nitrogen.

21. The composition that is made according to the method of Claim 19 wherein said injected blowing agent is carbon dioxide.

22. The composition that is made according to the method of Claim 19 wherein said injected blowing agent is in the family of butanes.

23. The composition that is made according to the method of Claim 19 wherein said injected blowing agent is in the family of chloroflorocarbons.

24. The composition that is made according to the method of Claim 18 wherein the blowing agent is a chemical blowing agent that is included as an ingredient in the feed mixture of polyvinyl chloride and glass, said chemical blowing agent being in the amount of 0.5% to 3% by weight of the feed mixture.

25. The composition made according to the method of Claim 24 wherein the chemical blowing agent is azodicarbonamide.

26. The composition made according to the method of Claim 24 wherein the chemical blowing agent is sodium bicarbonate.

27. The composition made according to the method of Claim 24 wherein the chemical blowing agent is citric acid.

28. The composition made according to the method of Claim 24 wherein the chemical blowing agent is at least two compounds selected from the group consisting of azodicarbonamide, citric acid, and sodium bicarbonate.